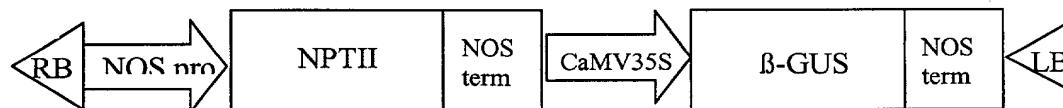
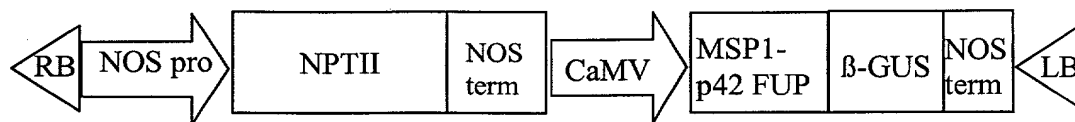


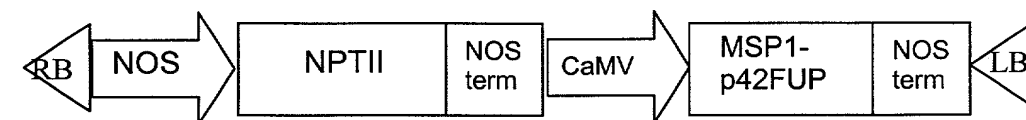
**Fig. 1(A)**



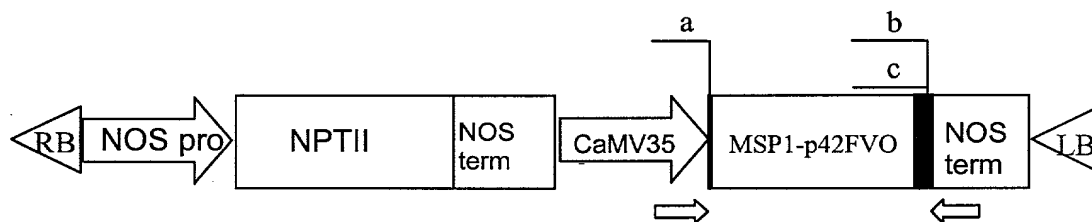
**Fig. 1(B)**

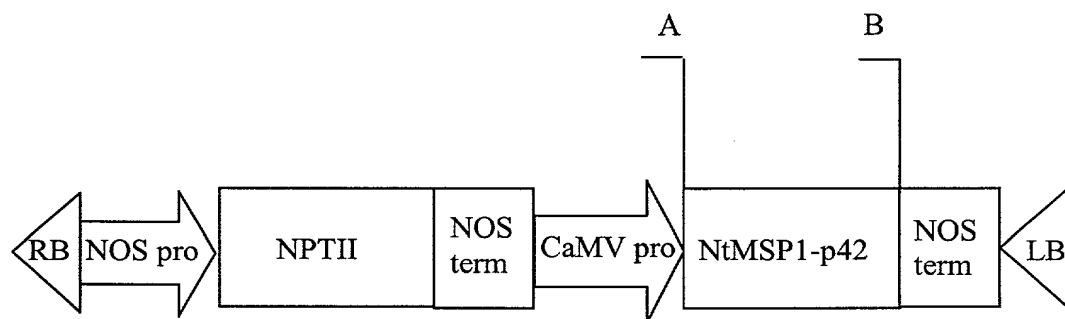


**Fig. 1(C)**

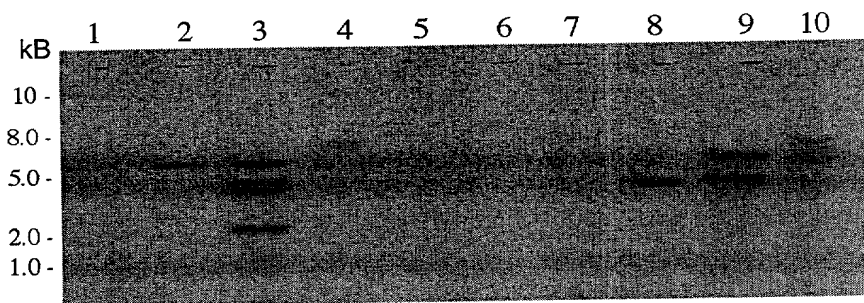


**Fig. 1(D)**

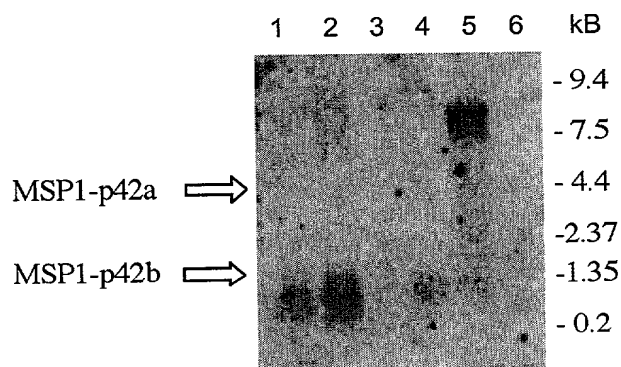




**Fig. 2**

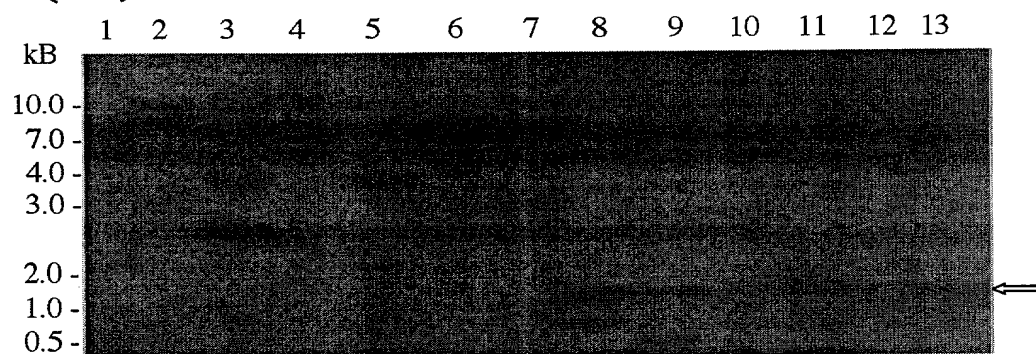


**Fig. 3(A)**

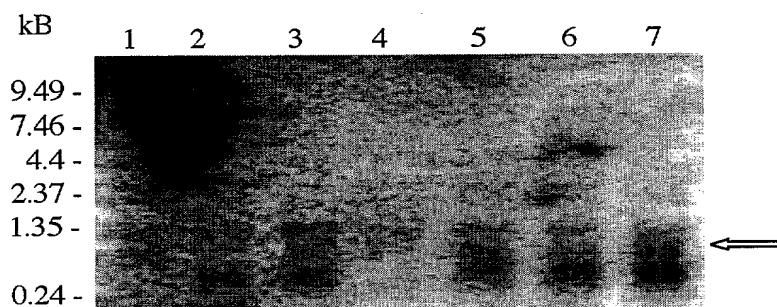


**Fig. 3(B)**

**Fig. 4(A)**

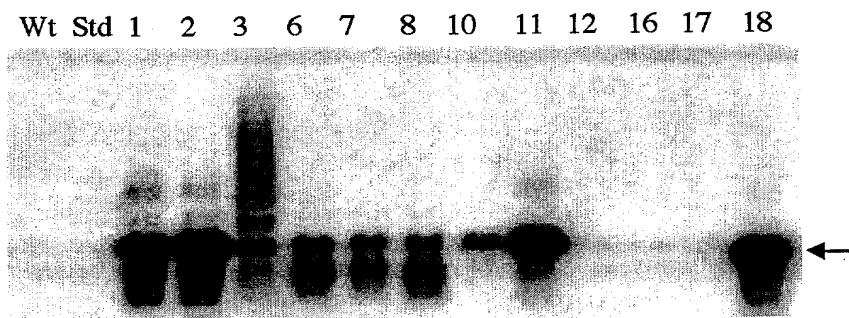


**Fig. 4(B)**

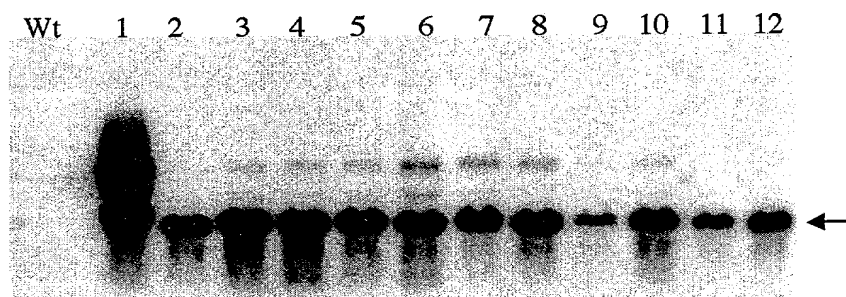


4009544-03403

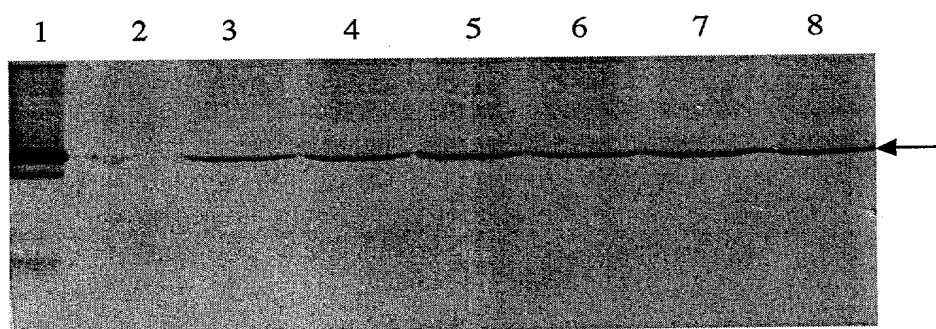
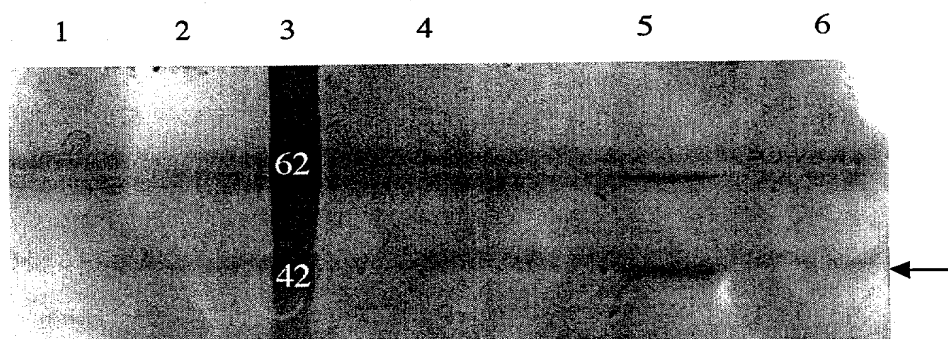
**Fig. 5(A)**



**Fig. 5(B)**



**Fig. 6(A)**



**Fig. 6(B)**

## Fig. 7(A)

MSP1.p42 FUP

401 AAAATGATATTAAAT TTGCACAGGA AGGTATAAG TTATTATGAAAAGGTT  
601 AACATTGAGAC CTTATACAATAAC TTAGTTAATAAAAT TGACGATTACTT  
951 TCCAGAAAAT TCTGGATGTTTCAGAC ATTTAGATGAAAG AGAAGAATGTA

MSP1.p42FVO

181 AATTTCAAAATG TTTTAGAATCAGATTTA ATTCCATATAAAG ATTTA  
230 ACATCAAGTAATT ATGTTGTCAAAGATCCA TATAAATTTCTTAATAAA  
277 GAAAAAAGAGA TAAATTCTTAAGCAGTTA TAATTATATTAAGGATTC

## Fig. 7(B)

|                                                                         |      |
|-------------------------------------------------------------------------|------|
| A E F D N I L S D N I L S G F E N E                                     | 18   |
| GCC GAA TTC GAC AAC ATC CTC AGT GAC AAC ATC CTC AGT GGC TTC GAG AAC GAG | 54   |
| Y D V I Y L K P L A G V Y R S L K K                                     | 36   |
| TAC GAC GTA ATC TAC CTA AAG CCC CTT GCC GGT GTC TAC CGT TCA TTG AAG AAA | 108  |
| Q I E K N I F T F N L N L N D I L N                                     | 54   |
| CAG ATA GAA AAG AAT ATT TTC ACG TTC AAC CTC AAC CTA AAT GAC ATC CTC AAC | 162  |
| S R L K K R K Y F L D V L E S D L M                                     | 72   |
| TCG CGC CTC AAG AAG CGA AAA TAC TTC CTC GAC GTG TTG GAA TCC GAC CTT ATG | 216  |
| Q F K H I S S N E Y I I E D S F K L                                     | 90   |
| CAA TTC AAG CAC ATT AGC TCT AAC GAG TAC ATC ATA GAG GAC AGC TTC AAG CTC | 270  |
| L N S E Q K N T L L K S Y K Y I K E                                     | 108  |
| TTG AAT TCA GAA CAG AAG AAC ACC CTC CTA AAG TCC TAC AAA TAC ATT AAG GAG | 324  |
| S V E N D I K F A Q E G I S Y Y E K                                     | 126  |
| TCT GTT GAG AAC GAC ATC AAG TTC GCC CAG GAA GGA ATT AGC TAC TAT GAG AAA | 378  |
| V L A K Y K D D L E S I K K V I K E                                     | 144  |
| GTC CTG GCT AAA TAC AAG GAC GAC TTG GAA AGC ATT AAG AAG GTA ATC AAA GAA | 432  |
| E K E K F P S S P P T T P P S P A K                                     | 162  |
| GAG AAG GAA AAG TTT CCG AGC TCT CCA CCC ACA ACT CCC CCA TCG CCT GCA AAG | 486  |
| T D E Q K K E S K F L P F L T N I E                                     | 180  |
| ACC GAC GAG CAG AAA AAA GAA AGT AAG TTC CTT CCA TTC CTC ACC AAC ATC GAA | 540  |
| T L Y N N L V N K I D D Y L I N L K                                     | 198  |
| ACT CTA TAT AAC AAC CTG GTG AAC AAG ATT GAT GAC TAC TTA ATC AAC TTG AAG | 594  |
| A K I N D C N V E K D E A H V K I T                                     | 216  |
| GCG AAA ATT AAT GAC TGT AAC GTC GAA AAG GAT GAA GCC CAC GTT AAG ATC ACC | 648  |
| K L S D L K A I D D K I D L F K N H                                     | 234  |
| AAG CTT TCC GAT CTC AAA GCC ATC GAC GAT AAG ATT GAC CTG TTT AAG AAC CAC | 702  |
| N D F D A I K K L I N D D T K K D M                                     | 252  |
| AAC GAT TTC GAC GCA ATC AAA AAG TTG ATC AAC GAC GAT ACT AAG AAA GAC ATG | 756  |
| L G K L L S T G L V Q N F P N T I I                                     | 270  |
| CTT GGA AAA CTG CTG TCG ACA GGC TTG GTC CAA AAC TTC CCG AAC ACC ATT ATA | 810  |
| S K L I E G K F Q D M L N I S Q H Q                                     | 288  |
| AGC AAG CTG ATC GAA GGA AAG TTT CAG GAT ATG CTG AAC ATC TCT CAG CAT CAA | 864  |
| C V K K Q C P E N S G C F R H L D E                                     | 306  |
| TGC GTG AAG AAG CAA TGT CCC GAG AAT TCA GGT TGC TTC CGC CAC TTA GAC GAA | 918  |
| R E E C K C L L N Y K Q E G D K C V                                     | 324  |
| AGG GAG GAA TGT AAA TGC CTG CTG AAT TAT AAA CAG GAA GGA GAC AAG TGC GTA | 972  |
| E N P N P T C N E N N G G C D A D A                                     | 342  |
| GAG AAT CCT AAC CCA ACC TGT AAC GAA AAT AAC GGT GGC TGC GAT GCT GAC GCT | 1026 |
| K C T E E D S G S N G K K I T C E C                                     | 360  |
| AAG TGT ACC GAG GAG GAC AGC GGT TCC AAT GGC AAG AAA ATA ACT TGC GAA TGC | 1080 |
| T K P D S Y P L F D G I F C S H D E                                     | 378  |
| ACG AAG CCC GAT AGT TAC CCT CTC TTC GAC GGT ATC TTC TGC TCC CAT GAT GAG | 1134 |
| L * E L T                                                               | 383  |
| CTT TAA GAG CTC ACC                                                     |      |

Fig. 8



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| R   | I   | Q   | G   | D   | I   | T   | M   | D   | N   | I   | L   | S   | G   | F   | E   | N   | E   | 18   |
| CGG | ATC | CAA | GGA | GAT | ATA | ACA | ATG | GAC | AAC | ATC | CTC | AGT | GGC | TTC | GAG | AAC | GAG | 54   |
| Y   | D   | V   | I   | Y   | L   | K   | P   | L   | A   | G   | V   | Y   | R   | S   | L   | K   | K   | 36   |
| TAC | GAC | GTA | ATC | TAC | CTA | AAG | CCC | CTT | GCC | GGT | GTC | TAC | CGT | TCA | TTG | AAG | AAA | 108  |
| Q   | I   | E   | K   | N   | I   | F   | T   | F   | N   | L   | N   | L   | N   | D   | I   | L   | N   | 54   |
| CAG | ATA | GAA | AAG | AAT | ATT | TTC | ACG | TTC | AAC | CTC | AAC | CTA | AAT | GAC | ATC | CTC | AAC | 162  |
| S   | R   | L   | K   | K   | R   | K   | Y   | F   | L   | D   | V   | L   | E   | S   | D   | L   | M   | 72   |
| TCG | CGC | CTC | AAG | AAG | CGA | AAA | TAC | TTC | CTC | GAC | GTG | TTG | GAA | TCC | GAC | CTT | ATG | 216  |
| Q   | F   | K   | H   | I   | S   | S   | N   | E   | Y   | I   | I   | E   | D   | S   | F   | K   | L   | 90   |
| CAA | TTC | AAG | CAC | ATT | AGC | TCT | AAC | GAG | TAC | ATC | ATA | GAG | GAC | AGC | TTC | AAG | CTC | 270  |
| L   | N   | S   | E   | Q   | K   | N   | T   | L   | L   | K   | S   | Y   | K   | Y   | I   | K   | E   | 108  |
| TTG | AAT | TCA | GAA | CAG | AAG | AAC | ACC | CTC | CTA | AAG | TCC | TAC | AAA | TAC | ATT | AAG | GAG | 324  |
| S   | V   | E   | N   | D   | I   | K   | F   | A   | Q   | E   | G   | I   | S   | Y   | Y   | E   | K   | 126  |
| TCT | GTT | GAG | AAC | GAC | ATC | AAG | TTC | GCC | CAG | GAA | GGA | ATT | AGC | TAC | TAT | GAG | AAA | 378  |
| V   | L   | A   | K   | Y   | K   | D   | D   | L   | E   | S   | I   | K   | K   | V   | I   | K   | E   | 144  |
| GTC | CTG | GCT | AAA | TAC | AAG | GAC | GAC | TTG | GAA | AGC | ATT | AAG | AAG | GTA | ATC | AAA | GAA | 432  |
| E   | K   | E   | K   | F   | P   | S   | S   | P   | P   | T   | T   | P   | P   | S   | P   | A   | K   | 162  |
| GAG | AAG | GAA | AAG | TTT | CCG | AGC | TCT | CCA | CCC | ACA | ACT | CCC | CCA | TCG | CCT | GCA | AAG | 486  |
| T   | D   | E   | Q   | K   | K   | E   | S   | K   | F   | L   | P   | F   | L   | T   | N   | I   | E   | 180  |
| ACC | GAC | GAG | CAG | AAA | AAA | GAA | AGT | AAG | TTC | CTT | CCA | TTC | CTC | ACC | AAC | ATC | GAA | 540  |
| T   | L   | Y   | N   | N   | L   | V   | N   | K   | I   | D   | D   | Y   | L   | I   | N   | L   | K   | 198  |
| ACT | CTA | TAT | AAC | AAC | CTG | GTG | AAC | AAG | ATT | GAT | GAC | TAC | TTA | ATC | AAC | TTG | AAG | 594  |
| A   | K   | I   | N   | D   | C   | N   | V   | E   | K   | D   | E   | A   | H   | V   | K   | I   | T   | 216  |
| GCG | AAA | ATT | AAT | GAC | TGT | AAC | GTC | GAA | AAG | GAT | GAA | GCC | CAC | GTT | AAG | ATC | ACC | 648  |
| K   | L   | S   | D   | L   | K   | A   | I   | D   | D   | K   | I   | D   | L   | F   | K   | N   | H   | 234  |
| AAG | CTT | TCC | GAT | CTC | AAA | GCC | ATC | GAC | GAT | AAG | ATT | GAC | CTG | TTT | AAG | AAC | CAC | 702  |
| N   | D   | F   | D   | A   | I   | K   | K   | L   | I   | N   | D   | D   | T   | K   | K   | D   | M   | 252  |
| AAC | GAT | TTC | GAC | GCA | ATC | AAA | AAG | TTG | ATC | AAC | GAC | GAT | ACT | AAG | AAA | GAC | ATG | 756  |
| L   | G   | K   | L   | L   | S   | T   | G   | L   | V   | Q   | N   | F   | P   | N   | T   | I   | I   | 270  |
| CTT | GGA | AAA | CTG | CTG | TCG | ACA | GGC | TTG | GTC | CAA | AAC | TTC | CCG | AAC | ACC | ATT | ATA | 810  |
| S   | K   | L   | I   | E   | G   | K   | F   | Q   | D   | M   | L   | N   | I   | S   | Q   | H   | Q   | 288  |
| AGC | AAG | CTG | ATC | GAA | GGA | AAG | TTT | CAG | GAT | ATG | CTG | AAC | ATC | TCT | CAG | CAT | CAA | 864  |
| C   | V   | K   | K   | Q   | C   | P   | E   | N   | S   | G   | C   | F   | R   | H   | L   | D   | E   | 306  |
| TGC | GTG | AAG | AAG | CAA | TGT | CCC | GAG | AAT | TCA | GGT | TGC | TTC | CGC | CAC | TTA | GAC | GAA | 918  |
| R   | E   | E   | C   | K   | C   | L   | L   | N   | Y   | K   | Q   | E   | G   | D   | K   | C   | V   | 324  |
| AGG | GAG | GAA | TGT | AAA | TGC | CTG | CTG | AAT | TAT | AAA | CAG | GAA | GGA | GAC | AAG | TGC | GTA | 972  |
| E   | N   | P   | N   | P   | T   | C   | N   | E   | N   | N   | G   | G   | C   | D   | A   | D   | A   | 342  |
| GAG | AAT | CCT | AAC | CCA | ACC | TGT | AAC | GAA | AAT | AAC | GGT | GGC | TGC | GAT | GCT | GAC | GCT | 1026 |
| K   | C   | T   | E   | E   | D   | S   | G   | S   | N   | G   | K   | K   | I   | T   | C   | E   | C   | 360  |
| AAG | TGT | ACC | GAG | GAG | GAC | AGC | GGT | TCC | AAT | GGC | AAG | AAA | ATA | ACT | TGC | GAA | TGC | 1080 |
| T   | K   | P   | D   | S   | Y   | P   | L   | F   | D   | G   | I   | F   | C   | S   | H   | D   | E   | 378  |
| ACG | AAG | CCC | GAT | AGT | TAC | CCT | CTC | TTC | GAC | GGT | ATC | TTC | TGC | TCC | CAT | GAT | GAG | 1134 |
| L   | *   | E   | L   | T   |     |     |     |     |     |     |     |     |     |     |     |     |     | 383  |
| CTT | TAA | GAG | CTC | ACC |     |     |     |     |     |     |     |     |     |     |     |     |     | 1149 |

Fig. 9

# Fig. 10

## DNA AND AMINO ACID SEQUENCE OF BVp42-M

attggatccactaaa

13 atgtggtccttggaagtgtcttttattctgggctgtccttggtgacc  
M W S W K C L L F W A V L V T  
58 gccactctttgcacagcagcgatctctgttactatggacaacatc  
A T L C T A A I S V T M D N I  
103 ctcagtggcttcgagaacgagtagcgcgtaatctacctaagccc  
L S G F E N E Y D V I Y L K P  
148 cttgccggtgtctaccgttcattgaagaaacagatagaaaagaat  
L A G V Y R S L K K Q I E K N  
193 attttcacgttcaacctcaacctaaatgacatcctcaactcgcgc  
I F T F N L N L N D I L N S R  
238 ctcaagaagcgaaaatacttctcgcgctgttggaatccgacctt  
L K K R K Y F L D V L E S D L  
283 atgcaatttaagcacattagctctaacgagtacatcatagaggac  
M Q F K H I S S N E Y I I E D  
328 agcttcaagctcttgaattcagaacagaagaacaccctcctaag  
S F K L L N S E Q K N T L L K  
373 tcctacaaatacattaaggagtctgttgagaacgacatcaagttc  
S Y K Y I K E S V E N D I K F  
418 gccaggaaggaattagctactatgagaaagtcctggctaaatac  
A Q E G I S Y Y E K V L A K Y  
463 aaggacgacttggaagcattaagaaggtaatcaaagaagagaag  
K D D L E S I K K V I K E E K  
508 gaaaagtttccgagctctccaccacaaactccccatcgccctgca  
E K F P S S P P T T P P S P A  
553 aagaccgacgagcagaaaaaagaaagtaagttccttccattcctc  
K T D E Q K K E S K F L P F L  
598 accaacatcgaaactctatataacaacctggtgaacaagattgat  
T N I E T L Y N N L V N K I D  
643 gactacttaatcaacttgaaggcgaaaattaatgactgtaacgtc  
D Y L I N L K A K I N D C N V  
688 gaaaaggatgaagcccacgttaagatcaccaagctttccgatctc  
E K D E A H V K I T K L S D L  
733 aaagccatcgacgataagattgacctgtttaagaaccacaacgat  
K A I D D K I D L F K N H N D  
778 ttcgacgcaatcaaaaagttgatcaacgacgataactaagaaagac  
F D A I K K L I N D D T K K D  
823 atgcttggaactgctgtcgcacaggcttggtccaaaacttcccg  
M L G K L L S T G L V Q N F P  
868 aacaccattataagcaagctgatcgaaggaaagtttcaggatatg

201104-14-100954

N T I I S K L I E G K F Q D M  
 913 ctgaacatctctcagcatcaatgcgtgaagaagcaatgtcccag  
 L N I S Q H Q C V K K Q C P E  
 958 aattcaggttgcttccgccacttagacgaaagggaggaatgtaaa  
 N S G C F R H L D E R E E C K  
 1003 tgcctgctgaattataaacaggaaggagacaagtgcgtagagaat  
 C L L N Y K Q E G D K C V E N  
 1048 cctaaccacaacctgtaacgaaaataacggtggctgcatgctgac  
 P N P T C N E N N G G C D A D  
 1093 gctaagtgtaccgaggaggacagcggttccaatggcaagaaaata  
 A K C T E E D S G S N G K K I  
 1138 acttgcgatgcacgaagcccgatagttaccctctcttcgacggt  
 T C E C T K P D S Y P L F D G  
 1183 atcttctgctcc  
 I F C S

ccacctcatcatcatcatcattaataagggtaccta  
 P P H H H H H H \* \*

20140414-09400